Abstracts

Novel closed-form Green's function in shielded planar layered media

H.-Y.D. Yang, Reonghee Kee and D.R. Jackson. "Novel closed-form Green's function in shielded planar layered media." 2000 Transactions on Microwave Theory and Techniques 48.12 (Dec. 2000 [T-MTT] (Special Issue on 2000 International Microwave Symposium)): 2225-2232.

A new method is proposed for the construction of closed-form Green's function in planar, stratified media between two conducting planes. The new approach does not require the a priori extraction of the guided-wave poles and the quasi-static part from the Green function spectrum. The proposed methodology can be easily applied to arbitrary planar media without any restriction on the number of layers and their thickness. Based on the discrete solution of one-dimensional ordinary differential equations for the spectral-domain expressions of the appropriate vector potential components, the proposed method leads to the simultaneous extraction of all Green's function values associated with a given set of source and observation points. Krylov subspace model order reduction is used to express the generated closed-form Green's function representation in terms of a finite sum involving a small number of Hankel functions. The validity of the proposed methodology and the accuracy of the generated closed-form Green's functions are demonstrated through a series of numerical experiments involving both vertical and horizontal dipoles.

❑ Return to main document.